WHAT IS CLAIMED IS:

1. A hard disk drive (HDD) comprising:

at least one rotatable disk;

at least one write element configured for writing data to the disk in isolated tracks and in bands, wherein at least two tracks establish a band; and

at least one HDD controller controlling the write element, the controller using a log-structured file system defining segments, each segment corresponding to at least one of: a respective band, and an isolated track.

2. The HDD of Claim 1, wherein at least some bands include at least three contiguous tracks.

3. The HDD of Claim 1, wherein the write element is configured for perpendicular recording.

4. The HDD of Claim 1, wherein the tracks within a band are shingled.

5. The HDD of Claim 1, wherein the log-structured file system uses an error correction code (ECC) block size larger than a physical sector size of the disk, a cumulative ECC parity state between successive partial writes of an ECC block being retained.

6. The HDD of Claim 1, wherein the log-structured file system uses a virtual address table (VAT) to implement shingled track writing.

7. The HDD of Claim 6, wherein the VAT maps virtual sector locations to actual sector locations.

8. The HDD of Claim 6, wherein the VAT is stored on the disk in at least one of: a location with non-overlapping tracks where random access writes can be performed, and a region with shingled written bands, using a log structured storage approach.

9. The HDD of Claim 6, wherein the HDD is part of a RAID system including a RAID controller, the RAID controller accessing the VAT to remap sectors as required for shingled track writing.

10. A data storage system comprising:

disk means for storing data;

means for writing data to the disk in tracks and bands, wherein at least two tracks establish a band and wherein at least some bands are shingled; and

means for controlling the means for writing, the means for controlling using a log means for establishing a file system.

11. The system of Claim 10, wherein at least some bands include at least three contiguous tracks.

12. The system of Claim 10, wherein the means for writing is configured for perpendicular recording.

13. The system of Claim 10, wherein the log means uses an error correction code (ECC) block size larger than a physical sector size of the disk means, a cumulative ECC parity state between successive partial writes of an ECC block being retained.

14. The system of Claim 10, wherein the log means uses a virtual address table (VAT) to implement shingled track writing.

15. The system of Claim 14, wherein the VAT maps virtual sector locations to actual sector locations.

16. The system of Claim 14, wherein the VAT is stored on the disk means in at least one of: a location with non-overlapping tracks where random access writes can be performed, and a region with shingled written bands, using a log structured storage approach.

17. The system of Claim 14, wherein the system is part of a RAID system including a RAID means for controlling, the RAID means for controlling accessing the VAT to remap sectors as required for shingled track writing.

18. A redundant array of independent disks (RAID) system comprising a RAID controller and a plurality of hard disk drives, each disk drive including at least one storage disk and at least one drive controller reading data from and writing data to the disk, wherein the drive controller for each disk drive is coupled to the RAID controller, the drive controller for each drive writing data in shingled bands using a log-structured

file system.

19. The RAID system of Claim 19, wherein at least some bands include at least three contiguous tracks.

20. The RAID system of Claim 19, wherein the disk drives are configured for perpendicular recording.

21. The RAID system of Claim 19, wherein the log-structured file system uses an error correction code (ECC) block size larger than a physical sector size of a disk, a cumulative ECC parity state between successive partial writes of an ECC block being retained.

22. The RAID system of Claim 19, wherein the log-structured file system uses a virtual address table (VAT) to implement shingled track writing.

23. The RAID system of Claim 22, wherein the VAT maps virtual sector locations to actual sector locations.

24. The RAID system of Claim 22, wherein the VAT is stored on the disk in at least one of: a location with non-overlapping tracks where random access writes can be

performed, and a region with shingled written bands, using a log structured storage approach.

25. The RAID system of Claim 22, wherein the RAID controller accesses the VAT to remap sectors as required for shingled track writing.